

CLAIMS

1. A radio controlled timepiece comprising:
 - a clocking unit configured to clock a time;
 - a display unit configured to display a time based on
 - 5 clock information from the clocking unit;
 - a receiving unit configured to receive standard radio waves from transmitting stations in at least two countries or regions;
 - a second-synchronization detecting unit configured to
 - 10 detect second-synchronization information from a demodulated signal obtained by the receiving unit;
 - a transmitting station determining unit configured to analyze the demodulated signal based on the second-synchronization information to determine a transmitting
 - 15 station in a country or a region; and
 - a decoding unit configured to decode information included in the standard radio wave from the transmitting station determined by the transmitting station determining unit to obtain time information, wherein
 - 20 the clock information of the clocking unit is corrected based on the time information obtained by the decoding unit.
2. The radio controlled timepiece according to claim 1,
- 25 wherein the receiving unit includes a reception switching unit and configured to receive a standard radio wave from another transmitting station with the reception switching unit if the second-synchronization information cannot be detected by the second-synchronization detecting unit, if
- 30 the transmitting station cannot be determined by the transmitting station determining unit, or if the time information cannot be decoded by the decoding unit.

3. A radio controlled timepiece comprising:

a clocking unit configured to clock a time;

a display unit configured to display a time based on clock information from the clocking unit;

5 a receiving unit configured to receive standard radio waves having an identical frequency from transmitting stations in at least two countries or regions;

a second-synchronization detecting unit configured to detect second-synchronization information from a demodulated signal obtained by the receiving unit;

10 a transmitting station determining unit configured to analyze the demodulated signal based on the second-synchronization information to determine a transmitting station in a country or a region; and

15 a decoding unit configured to decode information included in the standard radio wave from the transmitting station determined by the transmitting station determining unit to obtain time information, wherein

the clock information of the clocking unit is corrected based on the time information obtained by the decoding unit.

4. The radio controlled timepiece according to claim 1 or 3, wherein the second-synchronization detecting unit

25 includes

an edge detecting unit configured to sequentially detect rising edges and falling edges of the demodulated signal; and

a synchronization determining unit configured to obtain the second-synchronization information of the demodulated signal based on the detected rising edges or the detected falling edges.

5. The radio controlled timepiece according to claim 1 or 3, wherein the second-synchronization detecting unit includes

an edge detecting unit configured to synchronously
5 detect rising edges and falling edges of the demodulated signal; and

a synchronization determining unit configured to obtain the second-synchronization information of the demodulated signal based on the detected rising edges or
10 the detected falling edges.

6. The radio controlled timepiece according to claim 1 or 3, wherein the second-synchronization detecting unit includes

15 a sampling unit configured to detect rising edges and falling edges of the demodulated signal at regular intervals;

an adding unit configured to add up number of times of detection of the rising edges and the falling edges
20 detected by the sampling unit for each sampling position;

a storing unit configured to store the number of times of the detection of the rising edges and the falling edges added up for each sampling position by the adding unit; and

a waveform determining unit configured to obtain the
25 second-synchronization information of the demodulated signal based on the number of times of the detection of the rising edges and the falling edges for each sampling position stored in the storing unit.

30 7. The radio controlled timepiece according to claim 1 or 3, wherein

the second-synchronization detecting unit includes

a sampling unit configured to detect logic "1" or

logic "0" of the demodulated signal at regular intervals;
and

an adding unit configured to add up number of
times of detection of any one of the logic "1" and the
5 logic "0" detected by the sampling unit, and

the transmitting station determining unit is
configured to determine the transmitting station in the
country or region based on a result of addition by the
adding unit in the second-synchronization detecting unit.

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8. The radio controlled timepiece according to claim 1 or
3, wherein the transmitting station determining unit is
configured to analyze the demodulated signal based on the
second-synchronization information to determine the
15 transmitting station in the country or region from a
waveform of a position marker appearing in a constant cycle.

9. The radio controlled timepiece according to claim 1 or
3, wherein the transmitting station determining unit is
20 configured to analyze the demodulated signal based on the
second-synchronization information to determine the
transmitting station in the country or region based on a
particular waveform of the demodulated signal.

25 10. The radio controlled timepiece according to claim 1 or
3, wherein the second-synchronization detecting unit is
configured to prioritize an order in determination of the
transmitting station by the transmitting station
determining unit based on the detected second-
30 synchronization information.

11. A radio controlled timepiece comprising:
a clocking unit configured to clock a time;

a display unit configured to display a time based on clock information from the clocking unit;

a receiving unit configured to receive standard radio waves from transmitting stations in at least two countries
5 or regions;

a transmitting station determining unit configured to analyze a demodulated signal obtained by the receiving unit to determine a transmitting station in a country or a region based on a particular waveform of the demodulated
10 signal;

a decoding unit configured to decode information included in the standard radio wave from the transmitting station determined by the transmitting station determining unit to obtain time information, wherein
15 the clock information of the clocking unit is corrected based on the time information obtained by the decoding unit.

12. The radio controlled timepiece according to any one of
20 claims 1, 3, and 11, wherein the receiving unit is configured to receive a standard radio wave of a transmitting station from which a standard radio wave is successfully received in last reception, first.

25 13. The radio controlled timepiece according to any one of claims 1, 3, and 11, wherein the receiving unit includes a storing unit configured to store information on a transmitting station for which reception has succeeded before, and configured to determine an order of switching
30 based on the information on the transmitting station stored in the storing unit.

14. An electronic device comprising the radio controlled

timepiece according to any one of claims 1, 3, and 11.

15. A time correction method comprising:

a clocking step of clocking a time;

5 a display step of displaying a time based on clock information obtained at the clocking step;

a receiving step of receiving standard radio waves from transmitting stations in at least two countries or regions;

10 a second-synchronization detecting step of detecting second-synchronization information from a demodulated signal obtained at the receiving step;

a transmitting station determining step of analyzing the demodulated signal based on the second-synchronization information to determine a transmitting station in a country or a region; and

15 a decoding step of decoding information included in the standard radio wave from the transmitting station determined at the transmitting station determining step to obtain time information, wherein

20 the clock information obtained at the clocking step is corrected based on the time information obtained at the decoding step.